Raisonnée du Musée de Saint Germain-en-Laye," p. 157, sums up the present state of opinion in France on this question in this thoroughly impartial fashion: "The knowledge of pottery (of the cave men) is doubtful; at the most it was the privilege of some few tribes. The fragments of pottery discovered in the quaternary beds can almost always have been introduced there through fissures or by the action of burrowing animals;" and in a note, giving a bibliography of authorities, upon this difficult question of quaternary pottery one can always fall back upon later disturbunce of the beds, as do MM. de Mortillet and Cartailhac, who deny formally the existence of pottery in the age of the reindeer."

I think these citations are ample to show that all do not concede that palæolithic man made pottery.

HENRY W. HAYNES.

Boston.

Mr. MacDougal and Poisoning from Cypripedium spectabile.

In Bulletin No. 9, Minnesota Botanical Studies, are several interesting papers; and Mr. D. T. MacDougal's paper "On the Poisonous Influence of Cypripedium spectabile and Cypripedium pubescens" is of special interest because there is conclusive evidence that at least one of these plants is poisonous to some people. Both of these species are common in parts of Minnesota and Wisconsin, and I remember at least one case of supposed poisoning from the Large White Lady's Slipper. Some twenty years ago this species was common in rich moist woods in the coulés and ravines near springs and in the marshes of western Wisconsin. Children used to collect this species in large quantities, and on one occasion a young man collected a large quantity of the flowers, followed by a swollen face. It is so long ago, however, and as I could scarcely have been more than ten or eleven years old, I do not remember more than the collecting of the flowers and that his swollen face was attributed to this plant. It may have been from Poison Ivy, which is common in this region, but the person insisted he was poisoned by this Lady's Slipper. Mr. MacDougal gives the following interesting experiment, which leaves no doubt as to the poisonous character of the plant to some persons at least: "The author, while in the field at Twin Lakes, near Minneapolis, September 7, 1893, met with several well grown plants of *C. spectabile*, with newly formed seed pods. A robust specimen was broken off near the base of the stem, and the leaves were brushed lightly across the biceps muscle of the bared left arm. A slight tingling sensation was felt at the time, and fourteen hours later the arm was greatly swollen from the shoulder to the finger tips." He finds two kinds of hairs, one glandular, the other pointed. The poisonous effects may be due to the piercing of the skin by the pointed hair and the consequent action of the acid contents, or the surface irritation by the contents of the glandular hairs. Seventeen other plants found in Minnesota are enumerated which are poisonous to the touch, and some of these are common weeds like Cocklebur (*Xanthium canadense*), Horse Weed or Fleabane (*Erigeron canadense*) and White Spurge (*Euphorbia corollata*). The writer of this note is extremely sensitive to the action of Poisonous Ivy (*Rhus vernix*), but *Primula obconica*, which is said to be poisonous to some people, had no effect nor did it have any effect on several students working in the botanical laboratory on whom the experiment was tried. I know of one person who is systematically poisoned when he picks up wild grass. When questioned he stated that Poison Ivy was not seen by him. This matter of poisoning to the touch by different plants is largely a matter of individuality and condition of the system. Previous to 1886 I could pick and cut Poison Ivy with impunity, but in the spring of that year I was poisoned, and ever since I have been sensitive to its action. I may state that at the time I was subject to a slight bilious attack. I was perspiring very freely. I am certain that I touched my eyelids and face; had I not done so I would have been free from its effects.

L. H. PAMMEL.

Iowa Agricultural College, Ames, Iowa.

A Miniature Water Lily.

I HAVE been shown Mr. H. B. Ayres's note in the last number of *Science*, in which he credits me with having found *Nymphæa odorata var. minor* on the Moose River, near James Bay, in 1885. Though I ascended the Moose River in that year, I neither collected nor saw this plant. In the year 1886, however, in lat. 54, near the head waters of the Severn River, which runs into Hudson Bay, I did collect a *Nymphæa* which I took to be *N. odorata var. minor*. Specimens were sent to Dr. Britton, who identified them as *Castalia pygmæa*, Salisb. (*Nymphæa pygmæa* Oit. = *N. tetragona*, Georgi). Dr. Britton wrote me at that time: "The plant may be at once distinguished from the eastern *N. odorata var. minor*, by the oblong leaves, sometimes nearly twice as long as broad, with narrow, acutish lobes and the flowers still smaller, with seven to eight rayed stigma." The specimens in the herbarium of this department were then examined, and it was found that specimens collected by Dr. Robt. Bell, in 1879, on the Mesinabic River—a branch of the Moose River—and named *N. odorata var. minor*, were also this species.

Mr. Wm. McInnis, of the Geological Survey Department of Canada, reports a small *Nymphæa* as being abundant in some of the small lakes east of the Rainey Lake, almost due north of Red Lake. It seems to me probable that both these and the Red Lake and Turtle Lake plants are *Castalia pygmæa* and not *Nymphæa* (*Castalia*) *odorata var. minor*.

JAS. M. MACOUN.

Geological Survey Department, Ottawa.

The Swastika Cross.

THE display of relics in the anthropological building of the Columbian Exposition, collected by Mr. Warren K. Moorehead from a cluster of mounds near Chillicothe, Ohio, contained, among many other very interesting objects, a large number of Swastika crosses made from thin strips of copper. The occurrence of copper ornaments of that shape so perfectly wrought, and in such numbers, occasioned much surprise, and attracted great attention. A communication which I made to the *New York Independent* of Nov. 16, describing these objects, has brought to me two interesting communications from widely separated portions of the globe giving valuable information concerning the wide-spread use of this symbol.

Mr. John Thorgeirson, writing from Bannacks, Montana, tells me that an ancient MS., owned by his grandfather, in which there were many runic characters, represented Thor's hammer as of the form of the Swastika cross. It is interesting to note, also, that before Christianity had wholly subdued the Northmen the sign of the cross and of Thor's hammer, when made before partaking of festive draughts, were sometimes confounded, greatly to the misunderstanding of spectators.

Another communication from Rev. F. H. Chalfant, missionary at Shantung, China, informs me that the same symbol is among the mystic Chinese characters, to wit, "wan" ($\overline{|}\!+\!\underline{|}$), and is a favorite ornament with the Chinese.

This occurrence of so peculiar a symbol in countries so widely separated as Scandinavia, China, and the Mississippi Valley is certainly suggestive either of an original con-

nection between the races which migrated to those regions, or of early intercommunication between them. But my own information upon the subject is too scanty for me to discuss it further. G. FREDERICK WRIGHT.

Oberlin, O.

Nature Study in the Schools.

IN *Science* of March 2 an article on "Botany in the Schools" calls attention to a subject of interest to all teachers. "Nature Study," it may be assumed, has come to stay. It is too important a factor in education to be left out, even though its first introduction into the schools be accompanied with mistakes and inefficiency. This being granted, it is very reasonable to say, as does the writer of the article mentioned, that for the best results "a competent specialist should be put in charge of the work who could instruct the teachers, just as the specialist does in music and drawing." Nothing less than this, certainly, should be demanded of normal schools and large city schools having their own training departments. Teachers adapted to the work and thoroughly equipped for it should be put in charge of the training for science-teaching in the grades for the relief of the academic science teachers, whose regular work follows advanced methods, and for the more efficient application of the principles which govern elementary teaching. The State Normal School of Michigan sends out nearly two hundred graduates a year, many of them from the longer courses of study. The training schools of the large cities send out many more, and there is thus sent into the schools of the State each year a large body of teachers who know the meaning and the methods of "Nature Study."

But in any state, the large city schools form only a small portion of the aggregate. There are many schools in which the question of economy must regulate matters, and many schools which are not large enough to require the services of a special teacher. Shall these schools, then, "drop the subject altogether from the curriculum?" We answer decidedly not. Intelligent teachers, by reading and by study and use of material, should be able to fit themselves to do good work in this as well as in other lines. There are plenty of recent publications for their benefit, some of more, others of less, value. There are occasionally helpful lectures, and sometimes regular instruction at teachers' institutes. Every year the helps grow more numerous and are within easier reach. Current educational literature on this subject is not yet so abundant as it ought to be, but the demand will bring the supply. The educational journals have much that can be utilized, and there is one publication which is devoted to this work exclusively. This is *The Field and School Naturalist*, published at Minneapolis, which has absorbed *The Naturalist Teacher*, the modest little monthly started a few years ago by Professor McLouth, special science teacher in the schools of Muskegon, Mich. There may be other publications of similar character; certainly there soon will be others in the field, for the demand is imperative. With such helps the question of "Nature Study" should not be a question of alternatives, but rather one of doing in each school the very best the conditions will allow. LUCY A. OSBAND.

Michigan State Normal School.

A Brilliant Aurora.

AN aurora of unusual brilliancy and splendor was observed at Madison, Wis., on the evening of Feb. 23. A somewhat less notable display was seen on the night of the 22nd, but, so far as noted, it consisted only of the usual luminous arch, surmounted by long and rather brilliant streamers, which were white in the central portion of the arch and rosy red at the eastern and western extremities.

The display on the evening of the 23rd, as seen shortly before nine o'clock, consisted of a very brilliant arch, resting on a dense dark one, while a second dark arch was visible about three degrees below the upper one. The lower arch was not, at first, surmounted by a luminous portion. But few streamers were visible at this time. Stars were plainly seen in the space between the two arches, but not through the upper arch. In a few minutes the lower arch became somewhat luminous, and the dark portion of the upper arch became lighter.

At nine o'clock, at the eastern limb of the upper arch, a series of brilliantly colored streamers began to shoot up with great rapidity. The streamers were broad rather than long, and they had a swift westward motion. Nearly all were of several colors—red, yellow, green and white—in well marked, not very wide, bands. These streamers quickly assumed the appearance of swaying flags or curtains, and rapidly traversed the arch, moving toward the west. They seemed to occupy the space between the arch and the observer, and to absorb the arch as they advanced. Just before the front of the luminous folds reached the highest point of the arch, the latter was seen bending swiftly down in a double curve to about the position of the lower arch spoken of, but which was not then visible, and merging in the pendulous folds of the advancing, swaying curtains.

When the western limb was reached, brilliant streamers of white and crimson shot up to the zenith from both extremities of the arch with the swiftness of fierce flames but with only a slight swaying motion. The curtain-like folds had disappeared. The time occupied in the passage of the phenomena described was less than fifteen minutes. How much longer the display lasted and what was its character was not noted.

The magnetic disturbance was very considerable. After the brilliant portion of the display was over a compass was carefully adjusted and the deflection of the needle noted. The amount of the deflection at the end of fifteen minutes was 3°, 58′ to the west.

Although the movement of the needle was rapid,—most of the deflection occurred during the first five minutes,—the motion could not be perceived by the eye.

G. E. CULVER.

Madison, Wis.

The Durability of the Poisonous Property of Poison Ivy, Rhus Radicans L. (R. Toxicodendron L.).

A RECENT experience indicates that the poisonous principle of the above named plant is lasting.

In the botanical museum of Ohio State University are some stems of Poison Ivy that were deposited there not less than three years ago.

About ten days ago I noticed that they were infested with borers—the larva of some beetle. Desiring to study the beetle, the stems were broken a few times so that they would go into a covered glass jar. They are found to be bored through many times, so that they broke easily, and at every breaking the powder from the borings flew freely. I had no fears of being poisoned, but about 3.00 A.M. the next morning I was awakened by an itching between my fingers as if poisoned. Later development proved that it was poison, and I can account for it in no other way than that it came from the Poison Ivy. The burning was abated somewhat by the application of olive or sweet oil but lasted for several days. The epidermis is now coming off the affected part exactly as when having been poisoned with Rhus venenata D. C. E. E. BOGUE.

Columbus, O., Feb. 12, 1894.